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| EXAMINER | |
|---|---|
| ROMANO, JOHN J | |

| ART UNIT | PAPER NUMBER |
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| 2192 | |

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/008,864 | BATES ET AL. | |
| | Examiner | Art Unit | |
| | John J. Romano | 2192 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *15 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

Remarks

1. Applicant's arguments received April 15th, 2005, responding to the February 23rd, 2005, Office action provided in the rejections of claims 1-27. Claims 1-27 remain pending in this application and which have been fully considered by the examiner.

Examiner notes that the objection to claim 14 is withdrawn according to Applicants correction. Likewise, the rejection to claim 13 is withdrawn.

Applicant arguing for the claims being patentable over *Wygodny* (see pages 10-14 of the amendment and response) primarily based on assertions on page 11-13, where applicant primarily contends that claims 1, 3-11 and 13-24 are not anticipated by *Wygodny* and claims 2, 12 and 25-27 over *Wygodny* in view of *Lyndsey*, as *Wygodny* or *Lyndsey* do not disclose storing the state of the trigger expression when it is active within the machine-implemented process without interrupting the process and restoring the state of the trigger expression when requested, are not persuasive, as will be addressed under Prior Art's Arguments – Rejections section at item 2 and 3 below. Accordingly, rejection of the claims over prior art in the previous Office action is maintained and **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Prior Art's Arguments – Rejections***

2. Applicant's arguments filed April 15th, 2005, in particular on pages 11-13, have been fully considered but they are not persuasive. For example,

(A) As to Claims 1, 3-11 and 13-24, Applicant contends that *Wygodny* does not disclose storing the state of the trigger expression when it is active within the machine-implemented process without interrupting the process and restoring the state of the trigger expression when requested, as the instance application has recited and/or indicated in Claims 1, 3-11 and 13-24, which examiner strongly disagrees. However, while Applicant recognized that *Wygodny* is directed to tracing the execution paths of a program and thereby isolating bugs that may exist in the program (See page 11, second paragraph, of the response), Applicant, then concluded that *Wygodny* is contrary to the teachings of the Applicant, and which examiner disagrees.

(1) As to previous Office Action, (Page 3, Claim 1, step (b)), examiner pointed out that *Wygodny* discloses that the developer may also select which variables (e.g., local variables, global variables, static variables, etc.) should be traced, wherein the developer specified variables are the trigger expression to be

traced in the machine implemented process, (E.g., see Fig. 5 & Column 15, lines 52-55) furthermore, clearly stating that a variable may be specified; which is the equivalent to Applicant's claimed "...specifiying the trigger expression to be traced in the machine implemented process..." as claimed.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "...when the value of this variable changes, program execution is not stopped, but rather the point of change and the variable's value are saved", (See page 11, third paragraph, of the response) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

(2) As to previous Office Action, (Page 3, Claim 1, step (c)), examiner pointed out that *Wygodny* discloses the TCI file, wherein the tracing is specified as to location and information (trigger expression) to be stored, wherein this information is stored in the TCI file when the trace data is changed or active as described above, (E.g., see Fig. 1A & Column 7, lines 29-31); which is the equivalent to Applicant's claimed "...storing the state of the trigger expression when it is active within the machine-implemented process..." as claimed.

(3) As to previous Office Action, (Page 3, Claim 1, step (d)), examiner pointed out that *Wygodny* discloses analyzing the trace data stored in the trace log file, wherein the information in the trace log file (state of the trigger

expression) is converted back (restored) to a source level format using the same debug information used to create the trace log file, (E.g., see Fig. 1C & Column 7, lines 39-46); which is the equivalent to Applicant's claimed "...restoring the state of the trigger expression when requested..." as claimed.

Moreover, as to Claims 1, 3-11 and 13-24, the examiner would like to point out that Applicant's arguments *having the state of the trigger expression allows the user to solve a problem that has not been previously solved and that is to take the user from the current point of execution and place them back at the point where the variable's value changed*, (See page 11, fourth paragraph, of the response) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicant further asserts that *by restoring the values of the associated variables users can approximate the environment at the time that the change was made to traced variable. This allows the user to essentially back up in time and debug the problem...without having to rerun the program* (See page 12, first paragraph, of the response). The examiner asserts that Wygodny discloses restoring the values of the associated variables, thereby approximating the environment at the time of the change or trigger allowing the user to back up in time and debug the problem (E.g., see Fig. 1C & Column 7, lines 46-53), solving the same problem stated by the Applicants (Emphasis added).

(4) As to claims 3-4, the Applicant asserts the rejections of *Wygodny* fails to teach "creating a history of the trigger expression comprising storing each

state of the trigger expression when it is active", (See page 12, second paragraph, of the response). The examiner would like to direct the Applicant's attention to *Wygodny*, Figure 2 & Column 7, lines 51-53, wherein the analyzer allows the developer to step backward in the trace (history) and search for breakpoints (trigger expressions) in the past (history). Moreover, the examiner reasserts the rejection of Claim 4, as described below.

(5) As to claim 8, the examiner reasserts the rejection as disclosed below in connection with claim 8, wherein the trace data is restored showing information that took place during execution, including selected source lines, function calls, function returns, etc. (attached expressions). Further, the examiner reasserts the arguments of section (A), (1)-(4), as addressed above. Thus *Wygodny* does suggest "specifying at least one attached expression; storing the state of the at least one attached expression when the trigger expression is active within the machine-implemented process; and restoring the state of the at least one attached expression when requested".

(6) In regard to Claims 5-7, 9-11 and 13-24, which contain limitations similar to those described above, the examiner reasserts the rejection of the previous Office Action as disclosed below for completeness and the arguments of section (A), (1)-(5), as addressed above. Accordingly, *Wygodny* teaches the claimed language of Claims 5-7, 9-11 and 13-24.

Accordingly, Claims 1, 3-11 and 13-24 are not patentable over *Wygodny* for at least the reasons discussed above.

(B) As to Claims 2, 12 and 25-27, Applicant contends that *Wygodny* fails to teach or suggest storing the state of the expression and restoring the state of the trigger expression when requested, (See page 13, Section IV, first paragraph, of the response), as the instance application has recited and/or indicated in Claims 2, 12 and 25-27, which examiner strongly disagrees. The examiner reasserts the arguments of the previous Office Action as disclosed below for completeness and the arguments of section (A), (1)-(5), as addressed above. Accordingly, *Wygodny* teaches the claimed language of Claims 2, 12 and 25-27.

Furthermore, Applicant contends that *Wygodny in view of Lyndsey* fails to teach or suggest storing the state of the expression when it is active within the machine-implemented process without interrupting the process and restoring the state of the trigger expression when requested, (See page 13, Section IV, first paragraph, of the response), which examiner strongly disagrees. Applicant's arguments, with respect to *Lindsey*, fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references as the only limitations cited are respective to Wygodny as discussed. Thus, the examiner reasserts the arguments of the previous Office Action as disclosed below for completeness and the arguments of section (A), (1)-(5), as addressed above Accordingly, *Wygodny* in view of *Lyndsey*, teaches the claimed language of Claims 2, 12 and 25-27.

***Claim Rejections***

3. Claims 1-27, are pending claims, stand finally rejected in light of the additional clarifications provided and/or addressed at item 2 above, Prior Art's Arguments – Rejections, as claims 1, 2, 5 and 6 are unpatentable over *Hadjiyiannis*. Claims 2, 12 and 25-27 are unpatentable over *Wygodny* in view of *Lindsey*. The claim rejections from the previous office action of February 23rd, 2005 are included corresponding to the pending claims.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language

5. Claims **1, 3-11,** and **13-24** are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Wygodny et al., US 6,282,701 B1, (hereinafter **Wygodny**).

6. In regard to claim **1**, **Wygodny** discloses:

- "*A method of tracing the activity of an expression, said method comprising the steps of ...*" (E.g., see Figure 1C & Column 2, line 59-Column 3, line 1), wherein the data element may be a variable.

- "...*(a) specifying a machine-implemented process in which a trigger expression is to be traced...*" (E.g., see Figure 5 & Column 12, lines 44-47), wherein the trade option window allows the developer to specify which functions or machine-implemented process to trace.
- "...*(b) specifying the trigger expression to be traced in the machine-implemented process ...*" (E.g., see Figure 5 & Column 15, lines 52-55), wherein the developer may select which variables or expressions to be traced, wherein the execution of the traced variable triggers the trace.
- "...*(c) storing the state of the trigger expression when it is active within the machine-implemented process without interrupting the process ...*" (E.g., see Figure 1A & Column 7, lines 29-31), wherein the TCI file (120) specifies what information will be traced and stored.
- "...*(d) restoring the state of the trigger expression when requested.*" (E.g., see Figure 1C & Column 7, lines 39-43), wherein the developer analyzes the trace data.

7. In regard to claim **3**, the rejections of base claim **1** are incorporated. Furthermore, **Wygodny** discloses:

- "...*(a) creating a history of the trigger expression comprising storing each state of the trigger expression when it is active.*" (E.g., see Figure 1C & Column 26, lines 33-34), wherein the breakpoint is triggered

whenever the target address gets executed or is active. The interrupt then causes the variable or expression to be recorded (history).

8. In regard to claim **4**, the rejections of base claim **3** are incorporated. Furthermore, **Wygodny** discloses:

- "...*(a) displaying the history such that the state of the trigger expression each time the trigger expression was active can be displayed separately.*" (E.g., see Figure 1C & Column 8, lines 15-20), wherein the data stored or history is displayed according to filters set by the user allowing the user to display a particular triggered expression separately if desired.

9. In regard to claim **5**, the rejections of base claim **1** are incorporated. Furthermore, **Wygodny** discloses:

- "...*results in an L value during the machine-implemented process.*" (E.g., see Figure 1C & Column 8, lines 7-8), wherein the trace data may be a variable associated with an assembly address (memory location).

10. In regard to claim **6**, the rejections of base claim **5** are incorporated. Furthermore, **Wygodny** discloses:

- "...*wherein the activity is a call to a memory location of the trigger expression.*" (E.g., see Figure 1C & Column 26, line 33-34), wherein the trigger happens (activity) whenever the address is executed which inherently includes a read/write operation (call to memory).

11. In regard to claim **7**, the rejections of base claim **6** are incorporated.

Furthermore, **Wygodny** discloses:

- "*...the call to a memory location is a Read and/or a Write.*" (E.g., see Figure 1C & Column 26, line 33-34), wherein the trigger happens (activity) whenever the address is executed which inherently encompasses a read and write operation (call to memory).

12. In regard to claim **8**, the rejections of base claim **1** are incorporated.

Furthermore, **Wygodny** discloses:

"*...(a) specifying at least one attached expression; (b) storing the state of the at least one attached expression when the trigger expression is active within the machine-implemented process; and (c) restoring the state of the at least one attached expression when requested.*" (E.g., see Figure 3A & Column 18, lines 30-43), wherein the developer can choose any arguments, return values and selected source lines, thereby storing the state of a chosen function and attached expressions or variables, wherein trace can then be displayed according to the developers choice (restoring) when requested.

*13.* In regard to claim **9**, the rejections of base claim **1** are incorporated.

Furthermore, **Wygodny** discloses:

- "*...the machine-implemented process is a computer program.*" (E.g., see Figure 6 & Column 5, lines 20-23), wherein the user can trace a program.

14. In regard to claim **10**, the rejections of base claim **1** are incorporated.

Furthermore, **Wygodny** discloses:

- "*...included in an object level trace program.*" (E.g., see Figure 6 & Column 4, lines 43-50), wherein included in a trace program which may trace object code as disclosed.

15. In regard to claim **11**, the rejections of base claim **1** are incorporated.

Furthermore, **Wygodny** discloses:

- "*...included in a debug program.*" (E.g., see Figure 1A & Column 4, lines 43-50), wherein the invention provides debugging of a computer program.

16. In regard to claim **13**, **Wygodny** discloses:

- "*A tracing device...*" (E.g., see Figure 1A-1C, (106) & Column 18, lines 7-14), wherein a (tracing device) Bugtrapper Analyzer is disclosed.
- "*... (a) a memory functionally connected to the digital logic device capable of executing a sequence of instructions...*" (E.g., see Figure 1A & Column 5, lines 4-6), wherein windows-NT is disclosed in terms of the invention wherein, a memory functionally connected to a digital logic device capable of executing a sequence of instructions is inherent.
- "*...(b) a program to monitor the activity of an expression during the execution of the sequence of instructions...*" (E.g., see Figure 1B &

Column 3, lines 7-12), wherein a program monitors activity during execution.

- "... *(c) a snapshot of the state of the expression every time the expression is active during the execution of the sequence of instructions...*" (E.g., see Figure 1C & Column 26, lines 33-34), wherein the breakpoint is triggered whenever the target address gets executed or is active. The interrupt then causes the variable or expression to be stored (snapshot).
- "...*(d) a history stored in the memory, the history being a plurality of snapshots...*" (E.g., see Figure 1C & Column 26, lines 33-34), wherein the breakpoint is triggered whenever the target address gets executed or is active. Causing a plurality of expressions to be stored (history).
- "...*(e) a state restorer which restores the state of the expression in a snapshot...*" (E.g., see Figure 12 & Column 413, lines 29-32), wherein the state expression of a snapshot is restored.
- "...*(f) a user interface by which a user may interact with the program, a snapshot, and the history.*" (E.g., see Figure 3A & Column 18, lines 15-29), wherein a user interface by which a user may interact with the program, a snapshot, and a history is disclosed.

17. In regard to claims **14** and **15**, the rejections of base claim **13** are incorporated. See rejections of claims **11** and **10**, respectively, wherein, all claimed limitations have also been addressed and/or cited as set forth above.

18. In regard to claim **16**, the rejections of base claim **13** are incorporated.

Furthermore, **Wygodny** discloses:

- "*...an attachment expression profiler which stores the state at least one attachment expression with each snapshot.*" (E.g., see Figure 3A & Column 18, lines 30-43), wherein the developer can choose any arguments, return values and selected source lines, thereby storing the state of a chosen function and attached expressions or variables, wherein trace can then be displayed according to the developers choice (restoring) when requested.

19. In regard to claim **17**, the rejections of base claim **13** are incorporated.

Furthermore, **Wygodny** discloses:

- "*...the tracing device and the digital logic device are incorporated into the same computer.*" (E.g., see Figure 1B & Column 5, lines 37-53), wherein the device that does the tracing (trace library, (102)) is on the clients computer.

20. In regard to claim **18**, the rejections of base claim **13** are incorporated.

Furthermore, **Wygodny** discloses

- "*...the tracing device and the digital logic device are separate units connected by a data communications link.*" (E.g., see Figure 2 & Column 6, lines 55-65), wherein the device that does the tracing (trace library, (124)) is separated from the digital logic device and connected by a data communications link as shown.

21. In regard to claim **19**, **Wygodny** discloses:

- "*A processing device to trace the activity of an expression in a computer device...*" (E.g., see Figure 3 & Column 18, lines 7-14), wherein a tracing device is disclosed.
- "*... (a) a processor; (b) a memory* (Figure 1B, 122) *functionally connected to the processor; (c) a first computer program* (102), *executing by the processor in which the expression is active; (d) a second computer program* (125) *to trace the activity of the expression within the memory during the execution of first computer program...*" (E.g., see Figure 1B & Column 7, lines 29-31), wherein the customers site shown in Figure 1B inherently has a processor with a functionally connected memory to analyze the program and store the traced data to the log trace log file (122). Additionally, wherein the TCI file (120) specifies what information will be traced and stored.
- "*...(e) a snapshot which stores the state expression every time the expression...*" (E.g., see Figure 1B & Column 3, lines 7-12), wherein a program monitors activity during execution and stores the state (snapshot) when the expression is active based on the trace options.
- "*... (f) an attachment expression profiler...*" (E.g., see Figure 3A & Column 18, lines 30-43), wherein the developer can choose any arguments, return values and selected source lines, thereby storing the state (profiler) of a chosen function and attached expressions or

variables, wherein trace can then be displayed according to the developers choice (restoring) when requested.

The remaining limitations are addressed and/or cited as set forth above in claim **13.**

22. In regard to claim **20**, claim **20** is a profiler version of the method and apparatus claims that have been addressed in the above, claims **1, 8, 13** and **19**, wherein all claimed limitations have also been addressed and/or cited as set forth above.

23. In regard to claim **21**, the rejections of base claim **20** are incorporated. Furthermore, **Wygodny** discloses:

- "*...means to attach each state of the at least one attachment expression to the snapshot of the particular expression/variable when taken...*" (E.g., see Figure 3A & Column 18, lines 30-43), wherein the developer can choose any arguments, return values and selected source lines, thereby storing the state of a chosen function and attached expressions or variables when taken, wherein trace can then be displayed according to the developers choice (restoring) when requested.

24. In regard to claim **22**, the rejections of base claim **20** are incorporated. Furthermore, **Wygodny** discloses:

- "*...means to delete the profile.*" (E.g., see Figure 1B & Column 19, lines 15-19), wherein old records are deleted.

25. In regard to claim **23**, the rejections of base claim **20** are incorporated. Furthermore, **Wygodny** discloses:

- "*...means to change the particular expression/variable..*" (E.g., see Figure 5 & Column 15, lines 43-55), wherein the developer can deselect or select (change) lines and variables.

26. In regard to claim **24**, the rejections of base claim **20** are incorporated. Furthermore, **Wygodny** discloses:

- "*...means to change the at least one attachment expression.*" (E.g., see Figure 5 & Column 15, lines 43-55), wherein the developer can deselect or select (change) lines and variables, which may include the attachment expression or variable.

***Claim Rejections - 35 USC § 103***

27. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

28. Claims **2, 12** and **25-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Wygodny** in view of Lindsey, US 5,896,536 (hereinafter **Lindsey**).

1. In regard to claim **2**, the rejections of base claim 1 are incorporated. But **Wygodny** does not expressly disclose "...imposing a condition onto the trigger expression and storing the state of the trigger expression only when the condition is satisfied. However, **Lindsey** discloses:

- "*...(a) imposing a condition onto the trigger expression; and (b) storing the state of the trigger expression only when the condition is satisfied.*" (E.g., see Figure 6 & Column 8, lines 39-48), wherein a tracing operation is stored when a predetermined condition is detected (satisfied).

**Wygodny** and **Lyndsey** are analogous art because they are both concerned with the same field of endeavor, namely, tracing the execution path of a computer program. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to impose a trigger condition on **Wygodny's** tracing. The motivation to do so would have been to monitor the execution of the code based on selections or options from the user as suggested by **Wygodny** (Column 3, lines 7 –12), wherein the conditional trigger or expression would provide the user with further options. Furthermore, **Lyndsey** suggests "...the ability to trigger the generation of trace data based upon a specific data component so that information can be obtained relative to the data component during execution of logic units would be a valuable tool for developers in the debugging of programs". Thus it would have been obvious, to a person of ordinary skill in the art to include a conditional trace-point or trigger with **Wygodny's** tracing method.

29. In regard to claim **12**, **Wygodny** discloses:

- "*A method of tracing the activity of an expression in an executing computer program...*" (E.g., see Figure 2 & Column 4, lines 43-44), wherein a computer program being executed is traced.
- "*...(a) specifying the computer program in which a trigger expression resulting in an L value during the execution of the computer program is to be traced...*" (E.g., see Figure 1C & Column 8, lines 7-8), wherein the trace data may be a variable associated with an assembly address (memory location).
- "*...(b) specifying the trigger expression and any optional attachment expressions to be traced in the computer program...(e) creating a profile of the trigger expression comprising storing each snapshot; (f) displaying the profile such that each snapshot can be displayed separately; and (g) restoring the state of each snapshot, when requested.*" (E.g., see Figure 3A & Column 18, lines 30-43), wherein the developer can choose any arguments, return values and selected source lines, thereby storing the state of a chosen function and attached expressions or variables (profile), wherein trace can then be displayed according to the developers choice (restoring) when requested.

But **Wygodny** does not expressly disclose "imposing a condition onto the trigger expression. However, **Lyndsey** discloses:

- "...*(c) imposing a condition onto the trigger expression*(E.g., see Figure 6 & Column 8, lines 39-48), wherein a tracing operation is stored when a predetermined condition is detected (satisfied).

Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to impose a trigger condition on **Wygodny's** tracing. The motivation to do so would have been to monitor the execution of the code based on selections or options from the user as suggested by **Wygodny** (Column 3, lines 7 –12), wherein the conditional trigger or expression would provide the user with further options. Furthermore, **Lyndsey** suggests "...the ability to trigger the generation of trace data based upon a specific data component so that information can be obtained relative to the data component during execution of logic units would be a valuable tool for developers in the debugging of programs". Thus it would have been obvious, to a person of ordinary skill in the art to include a conditional trace-point or trigger with **Wygodny's** tracing method.

30. In regard to claim **25, Wygodny** discloses:

- "...*(a) initiating a user interface to exchange data input/output with a user and an electronic processing apparatus...*" (E.g., see Figure 1C & Column 2, line 59-Column 3, line 1), wherein the user interface is initiated after the user starts the program.
- "...*(b) requesting a trigger expression from a user...*" (E.g., see Figure 5 & Column 13, lines 50-54), wherein the developer may specify which variables or expressions to be traced (520), wherein the execution of

the traced variable triggers the trace. Furthermore, the developer opens a window that requires, or requests, the developers input.

- "...*(c) requesting a program identification of a program in which the trigger expression is to be traced...*" (E.g., see Figure 5 & Column 12, lines 44-47), wherein the trade option window allows the developer to specify, (requests from the user), which functions or machine-implemented process (program) to trace.
- "...*(d) causing the electronic processing apparatus to execute the identified program; (e) storing the state of the trigger expression each time a memory operation occurs to the trigger expression during the executing identified program without interrupting or otherwise stopping execution of the identified program as a snapshot...*" (E.g., see Figure 1C & Column 26, line 33-34), wherein the trigger happens (activity), storing the state of the trigger expression, whenever the address is executed (memory operation), which takes place while the identified program is executing.
- "...*(f) maintaining the capability to restore each snapshot and display each snapshot to the user.*" (E.g., see Figure 1C & Column 8, lines 15-20), wherein the data stored or history is displayed (restored) according to filters set by the user allowing the user to display a particular triggered expression separately if desired.

But **Wygodny** does not expressly disclose "...an article of manufacture, comprising a data storage medium tangibly embodying a program of machine readable instructions executable by an electronic processing apparatus...". However, **Lyndsey** discloses:

- "*An article of manufacture, comprising a data storage medium tangibly embodying a program of machine readable instructions executable by an electronic processing apparatus...*" (E.g., see Figure 1 & Column 4, lines 48-61).

Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to embody **Wygodny's** tracing instructions on an article of manufacture. The motivation to do so would have been to send the tracer program to the client as suggested by **Wygodny** (Column 3, lines 30-32), wherein the developer would not need to visit the remote site. Thus it would have been obvious, to a person of ordinary skill in the art to include a **Wygodny's** tracing program on an article of manufacture.

31. In regard to claim **26**, the rejections of base claim **20** are incorporated. But, **Wygodny** does not expressly disclose "*...requesting the user to assign conditions to the trigger expression*". But **Lyndsey** discloses:

- "*...requesting the user to assign conditions to the trigger expression whereupon when the conditions are satisfied, a snapshot of the trigger expression is stored.*" (E.g., see Figure 5, (86) & Column 6, lines 59-61), wherein a tracing operation is stored when a predetermined

condition is detected (satisfied), wherein the predetermined condition was input from the user (requested from the user) via the if condition (Figure 5, block 86).

Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to impose a trigger condition on **Wygodny's** tracing. The motivation to do so would have been to monitor the execution of the code based on selections or options from the user as suggested by **Wygodny** (Column 3, lines 7 –12), wherein the conditional trigger or expression would provide the user with further options. Furthermore, **Lyndsey** suggests "...the ability to trigger the generation of trace data based upon a specific data component so that information can be obtained relative to the data component during execution of logic units would be a valuable tool for developers in the debugging of programs". Thus it would have been obvious, to a person of ordinary skill in the art to include a conditional trace-point or trigger with **Wygodny's** tracing method.

32. In regard to claim **27**, the rejections of base claim **25** are incorporated. Furthermore, **Wygodny** discloses:

- "...*requesting the user to indicate attached expressions whose states are also stored in a corresponding snapshot whenever a snapshot is stored for the trigger expression.*" (E.g., see Figure 3A & Column 18, lines 30-43), wherein the developer can choose any arguments, return values and selected source lines, thereby storing the state of a chosen function

and attached expressions or variables (profile), wherein trace can then be displayed according to the developers choice (restoring) when requested.

***Conclusion***

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J Romano whose telephone number is (571) 272-3872. The examiner can normally be reached on 8-5:30, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q Dam can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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JJR

WEI Y. ZHEN
PRIMARY EXAMINER